

Remarks

Claims 1-21 were pending in the application. Claims 1-21 were rejected. No claims were merely objected to and no claims were allowed. By the foregoing amendment, no claims are canceled, claims 6 and 7 are amended, and no claims are added. No new matter is presented.

Claim Rejections-35 U.S.C. 103

Claims 1, 2, 5-8, and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter, Jr. (US5494004) in view of Adams (US4545329). Applicant respectfully traverses the rejection.

At page 2, the Office action listed four factual inquiries under *Graham v. John Deere*. However, the Office action then failed to provide sufficient analysis of these factors. For example, there is no resolution of the level of ordinary skill or consideration of objective evidence present including teachings of the references indicating obviousness or non-obviousness.

It appears the Office has merely attempted to engage in a keyword search, finding various words that appear in the claims in the references. However, it does not appear that the Office has actually thought through, let alone articulated the nature of the combination of elements that those words represent. What does the asserted combination look like? What features of each of the references are present, what features are left out, and why?

Furthermore, and with particular relevance to claim 8, there clearly has been insufficient analysis of the scope and content of the prior art and interpretation of the claims. Specifically, claim 8 is written in means-plus-function language under 35 U.S.C. 112(6). There has been no analysis under this section as required by *In re Donaldson*. The final paragraph of page 5 of the July 23, 2007 Office action attempted to dodge this requirement by the insufficient assertion that the terms "means for mounting the nozzle to an upstream soot blower" and "means for cooling the nozzle" are not repeated *ipsis verbis* in the specification. The Office then asserted that "the means for mounting the nozzle are flanges and bolts as disclosed in the specification (para [0029] page 5); and means for cooling the nozzle is water as disclosed on para [0042] page 11." July 23, 2007 Office action, page 6, lines 1-3. The former is correct, the latter is not. The latter ignores structure. Structure and use of a nozzle cooling gas is discussed in paragraph 0043.

Turning to specifics, Hunter, Jr. involves an articulating soot blower. Hunter, Jr. includes oddly named apertures 21A and 31A which wind back and forth between ends of the members 21 and 31 to carry cooling water in a loop.

Adams "relates generally to gas/oil fired commercial and residential water heaters..." and to burner mounting, in particular. Col. 1, lines 13&14. There is no substantiation for the assertion that Adams is in the same area of endeavor as either Hunter, Jr. or the present disclosure. Adams discloses flange mounting of a fire tube assembly 31 to a tank 13. The first full paragraph of page 6 of the prior July 23, 2007 Office action highlighted the improper nature of the combination as an abuse of keyword searching (discussed further below). It was asserted that "Adams discloses a water heater and the mounting of a combustion tube 33 on the wall of a vessel 21. Both Hunter and the present application disclose the mounting of a combustion tube on the wall of a vessel." The Office overly relied on the formative "combust" to assert analogy between the fire tube assembly of Adams and the combustion soot blower of Hunter, Jr. In the present action, it was asserted in the paragraph spanning pages 3 and 4 that "a similar problem of mounting a tube to a wall is addressed..." There are clear problems with this. First, it has not been established that Hunter, Jr. suffered such a problem. Second, there is no physical analogy. The Adams' annular chamber 67 was asserted as the "upstream conduit 67 delivering the gas...", the combustion chamber 33 apparently being the downstream portion. However, one need only look to FIG. 2 of Adams and FIG. 3 of Hunter, Jr. to see there is no analogy. The burner 83, not the annular chamber 67 is at the upstream end of the conduit. One should be careful, however, to also look at FIG. 2 of Adams to the actual nature of the tubes 41.

In a slight change from the July 23, 2007 Office action, it was asserted as having been obvious "to modify Hunter's cleaning apparatus by including the flange and bolts to secure the conduit to the wall of the furnace in order to provide an apparatus where the conduit is easily removed by detaching the mounting flange as taught by Adams (column 2 line 36-38)." Office action, page 4, first full paragraph. This is circular logic and conclusory. For example, there is no reason to assume that one of ordinary skill in the art would have regarded Hunter, Jr. as being insufficiently easily removable so as to require modification. To the contrary, the Hunter, Jr. lack of a flange clearly evidences ease of removing. Thus, there is no indication that Hunter, Jr. needed any more removability than it already had (which appears to exceed the removability of

Adams). Furthermore, asserted mounting to a vessel is not the claimed use of the flange for coupling the apparatus to the upstream conduit.

The water tank of Adams and boiler wall 83 are clearly non-analogous to Hunter, Jr. and, frankly, are inverted. The latter contains warm gas in a space through which boiler tubes pass. The former contains water. More narrowly, as noted above, the gas venting through discrete tubes 41 is different from the cooling of a sootblower.

Furthermore, as a general matter, flanges are old and notorious in many arts. Flanges would clearly have been available to Hunter, Jr. The fact that Hunter, Jr. did not himself adopt such a flange (either in the way proposed by the Office or in a way more corresponding to the present claims) is evidence of non-obviousness (e.g., teaching away). This is distinguished, for example, from the situation of a secondary reference embodying a recently-developed technology. This is not merely a case of applying a recent development already used to modify one similar device to similarly modify another. “Applying modern electronics to older mechanical devices has been commonplace in recent years.” *Leapfrog Enterprises Inc. v. Fisher-Price Inc.*, __ F.3d __, __, 82 USPQ2d 1687, 1691 (Fed. Cir. 2007). “There then was a marketplace creating a strong incentive to convert mechanical pedals to electronic pedals, and the prior art taught a number of methods for doing so.” *KSR International Co. v. Teleflex Inc.*, 550 U.S. __, __, 127 SCt 1727, __, 167 LEd2d 705, __, 82 USPQ2d 1385, 1390 (U.S. 2007).

The present case is clearly distinguished for example from that of *KSR* and *Leapfrog*. The present inventors have not simply modified one basic sootblower in a similar way to which the recent prior art has modified similar sootblowers. To a great extent, *KSR* and *Leapfrog* deal with obvious subject matter wherein the obviousness arose too recently for a convenient anticipatory reference to be found.

The present secondary reference Adams is clearly nonanalogous to the primary reference Hunter, Jr. This is clearly different from *KSR* and *Leapfrog*, wherein similar modifications are found in analogous references for analogous purposes.

The present secondary reference (more particularly the elements/teachings for which it is cited) is also not particularly recent. Thus, the art has had more than sufficient time to have adopted those elements/teachings but has not done so. Thus, unlike *KSR* and *Leapfrog*, had the invention been obvious, one would clearly have expected an anticipatory reference to have arisen in the passage of time.

Unlike *KSR* and *Leapfrog*, the Office action did not identify a recently-arisen prior art need (e.g., a strong market incentive) that would similarly give reason for the modification.

Claims 3, 4, 9-16, and 18-21 was rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter, Jr. in view of Adams and further in view of Beusman (US3084373). Applicant respectfully traverses the rejection.

Beusman discloses a cooled steam soot blower rather than a combustion-operated soot blower. The soot blower has a radially/circumferentially extending array of nozzles 12. Cooling air is introduced through a tube 19. The air passes through ducts 14 and a sheath 13.

Adams' element 43 was asserted as the inner wall downstream rim. Office action, page 4, line 5. This, however, appears to beg the question of where the claim 4 outer wall downstream rim is and where the claim 4 outlet is.

However, the second full paragraph of page 6 of the July 23, 2007 added the conclusory assertion that "inner and outer walls have [*sic*] downstream rim at 35. In Hunter's invention the outlet location is between the inner and out [*sic*] walls (fig 8) as recited in claim 4." However, this again begs the question of exactly what are the inner and outer walls? Is the examiner drawing these from Hunter, Jr. or Adams? What do they look like in the final asserted combination?

It was asserted as having been obvious "to modify Hunter in view of Adams's cleaning apparatus by including all the limitations taught by Beusman and recited above in order to provide a cleaning apparatus that uses readily available and cheap air in an open cooling cycle as taught by Beusman (column 1 line 41&42, column 3, line 25-27)." Office action, page 5, second full paragraph. This is clearly an insufficient reason. The motivation is totally circular and conclusory. What is the motivation for using air relative to water (also cheap)? The first paragraph of page 6 of the Office action asserted that air was "definitely cheaper than water". However, this does not constitute a motivation for substitution. By whatever token one can assert air is cheaper than water, one must also conclude that both are extremely cheap. No basis has been argued that one of ordinary skill in the art would have found water so expensive as to necessitate a change, let alone a change that would also incur other detriments such as loss of cooling efficiency (again, one can take official notice the greater cooling capacity of water). What is the motivation for using an open system relative to a closed system? In that same

paragraph it was asserted that "it would appropriate to discharge air into the furnace but not water." However, this presumes one has changed from the closed system of Hunter, Jr. What deficiency in Adams would have led one of ordinary skill in the art to that change?

Second, there is no indication that one of ordinary skill in the art would have selected any modification from Beusman. Beusman is a substantially different structure than Hunter, Jr. Beusman involves a radial discharge of steam from an array of small discrete steam nozzles. Hunter, Jr. involves discharge of a shockwave from the end of a single conduit. These are greatly different situations. There is no indication of how Beusman would be adapted to Hunter, Jr. without destroying its basic functionality or with any chance of functioning, let alone an expectation of having advantageous performance.

Again, Beusman substantially predates Hunter, Jr. Presumably, had any combination been obvious, Hunter Jr. would have made it. This is similarly distinguished from the situation of a recently-arisen need or secondary reference being used to modify a variety of existing references as in *KSR* and *Leapfrog*.

Accordingly, Applicant submits that claims 1-21 are in condition for allowance. Please charge any fees or deficiency or credit any overpayment to our Deposit Account of record.

Respectfully submitted,

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